

II. AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of synchronizing communications messages between a first back office system and a web-based application in a computer network, wherein the first back office system comprises a first back office database and a plurality of nodes for creating documents, the nodes communicating with the first back office database, the documents each being identified with a primary key code and a timestamp designating the time of creation of each document, and the back office system generates document messages, the document messages each comprising one of the documents and primary key code and timestamp information for the one of the documents, the method comprising the steps of:

receiving in the web-based application a stream of the document messages from the first back office system, wherein the document messages transfer information about changes to data in the first back office system for integrating the first back office system and the web-based application;

operating a database of the web-based application to maintain inbound document message information comprising primary key codes and said timestamps for selected document messages previously received by the web-based application database;

comparing the primary key code of a new inbound document message received by the web-based application database with primary key codes maintained in the web-based application database for the previously received document messages;

selecting a pair of corresponding document messages by identifying any one previously received document message having a primary key code corresponding with the primary key code of the new inbound message;

selecting a unique new inbound document message by identifying any new inbound document message with a primary key code which does not correspond to any of the primary key codes maintained in the web-based application database;

identifying the more recent document message in the selected pair of corresponding document messages by comparing the timestamp of the previously received document message in the message pair with the timestamp of the new inbound message in the message pair; and

updating the web-based application database to record: the inbound document message information for the more recent document message, the unique inbound document message; and the timestamps for the more recent and the unique inbound document messages,

wherein the method is adapted to process the document messages in ~~an appropriate a~~ synchronous time sequence even if the timestamp of the previously received document message is more recent than the timestamp of the new inbound message.

2. (Original) The method of claim 1 wherein the primary key comprises document type information and document identification information.

3. (Original) The method of claim 2 wherein the inbound document messages are communicated to an inbound queue prior to communication to the web-based application database.

4. (Original) The method of claim 2 wherein the inbound document messages are communicated to a multi-threaded inbound message processor prior to communication to the web-based application database.

5. (Original) The method of claim 2 wherein the inbound document messages are generated by a multi-port message generator.

6. (Original) The method of claim 2 further comprising logging an error when a new inbound message in a selected pair of corresponding document messages does not have the more recent timestamp in the selected pair.

7. (Original) The method of claim 6 further comprising identifying the new inbound message in a selected pair of corresponding document messages which does not have the more recent timestamp in the selected pair and segregating said new message from further processing according to a predetermined process path.

8. (Currently Amended) A computer program product for use with a web-based application, the computer program product comprising:

a recording medium;

means, recorded on the recording medium, for receiving in an inbound message processor of the web-based application a stream of inbound document messages, wherein the inbound document messages transfer information about changes to data in a sender of the inbound

document messages for integrating the sender of the inbound document messages and the web-based application;

means, recorded on the recording medium, for operating a web-based application database in the web based application and in communication with the means for receiving to maintain inbound document message information comprising primary key codes and corresponding timestamps for selected document messages previously received by the web-based application database;

means, recorded on the recording medium, for comparing the primary key code of a new inbound document message received by the web-based application database with primary key codes maintained in the web-based application database for the previously received document messages;

means, recorded on the recording medium, for selecting a pair of corresponding document messages by identifying any one previously received document message having a primary key code corresponding with the primary key code of the new inbound message;

means, recorded on the recording medium, for selecting a unique new inbound document message by identifying any new inbound document message with a primary key code which does not correspond to any of the primary key codes maintained in the web-based application database;

means, recorded on the recording medium, for identifying the more recent document message in the message pair of corresponding document messages by comparing the timestamp of the previously received document message in the message pair with the timestamp of the new inbound message in the message pair; and

means, recorded on the recording medium, for updating the web-based application database to record: inbound document message information for the more recent document message; inbound document message information for the unique inbound document message; and the timestamps for the more recent and the unique inbound document messages,

wherein the program product is adapted to process the inbound document messages in ~~an~~ appropriate a synchronous time sequence even if the timestamp of the previously received document message is more recent than the timestamp of the new inbound message.

9. (Original) The product in claim 8 wherein the web-based application comprises an inbound message processor for multi-threaded processing of document messages, the document messages being generated by a back office system.

10. (Original) The product in claim 9 wherein each of the document messages generated by the back office system comprises a corresponding document, a primary key code for the corresponding document and a timestamp designating the time of creation of the corresponding document.

11. (Original) The product in claim 10 wherein the recording medium is a magnetic storage device.

12. (Currently Amended) A web-based system for communication with a back office system, the back office system comprising a back office database and a plurality of nodes for creating documents, the nodes communicating with the back office database, the documents each being identified with a primary key code and a timestamp designating the creation of each document, the back office system generating document messages, each of the document messages comprising one of the documents and the primary key code and the timestamp for the one of the documents, the web-based system comprising:

an inbound message processor for processing a stream of document messages received from the back office system, wherein the document messages transfer information about changes to data in the back office system for integrating the back office system and the web-based application;

a web-based application database in communication with the inbound message processor;

means for operating the web-based application database to maintain inbound document message information comprising primary key codes and timestamp for selected document messages previously received by the web-based application database;

means for comparing the primary key code of a new inbound document message received by the web-based application database with primary key codes maintained in the web-based application database for the previously received document messages;

means for selecting a pair of corresponding document messages by identifying any one previously received document message having a primary key code corresponding with the primary key code of the new inbound message;

means for selecting a unique new inbound document message by identifying any new

inbound document message with a primary key code which does not correspond to any of the primary key codes maintained in the web-based application database;

means for identifying the more recent document message in the message pair of corresponding document messages by comparing the timestamp of the previously received document message in the message pair with the timestamp of the new inbound message in the message pair; and

means for updating the web-based application database to record: the inbound document message information for the more recent document message; the inbound document message information for the unique inbound document message; and the timestamps for the more recent and the unique inbound document messages,

wherein the system is adapted to process the document messages in ~~an appropriate a~~ synchronous time sequence even if the timestamp of the previously received document message is more recent than the timestamp of the new inbound message.

13. (Original) The web-based system claimed in claim 12, wherein the inbound message processor provides multi-threaded processing of document messages.

14. (Original) The web-based system claim in claim 13, wherein the primary key codes comprise document type information and document identification information.

15. (Previously Presented) The method of claim 2, wherein the document type information includes at least one of order confirmation, order delivery, order invoice, product inventory updates, product price updates and customer information updates.

16. (Previously Presented) The product in claim 10, wherein the primary key code comprises document type information and document identification information.

17. (Previously Presented) The product in claim 16, wherein the document type information includes at least one of order confirmation, order delivery, order invoice, product inventory updates, product price updates and customer information updates.

18. (Previously Presented) The web based system of claim 14, wherein the document type information includes at least one of order confirmation, order delivery, order invoice, product inventory updates, product price updates and customer information updates